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EXAMINER

YAM, STEPHEN K

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 07/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/977,287

Applicant(s)

SUZUKI ET AL.

Examiner

Stephen Yam

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Claim Objections

1. Claims 1, 7, and 8 are objected to because of the following informalities:

In Claims 1, 7, and 8, the terms "optical signal" and "signal light" appear to be interchanged throughout the claim language, so it is unclear whether the terms refer to a single element. Applicant is recommended to use consistent terminology for a single element throughout the claims. In addition, in Claims 7 and 8, a "signal light" is defined before the introduction of the optical receiver, so it is unclear if the signal light, especially "said signal light" in line 8 (for Claim 7) and line 9 (for Claim 8) is identical to that in the optical receiver.

In Claims 7 and 8, line 5, "said first photosensitive region" lacks proper antecedent basis, as the term is not defined until the optical receiver is introduced.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Claim 7, it is unclear what a "holdinportionparatus" refers to in the preamble of the claim, as the term is unfamiliar to one of ordinary skill in the art.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Takagi Japanese Publication No. 60-242740.

Regarding Claim 1, Takagi teaches (see Fig. 1) an optical receiver for receiving an optical signal comprising first photodetecting means (DET1) having a first photosensitive region for outputting a first electric signal corresponding to said signal light detected by said first photosensitive region, second photodetecting means (DET2) having a second photosensitive region disposed externally close to a periphery of said first photosensitive region (see Fig. 1), for outputting a second electric signal corresponding to said signal light incident on said second photosensitive region, signal amplifying means (REC) for amplifying, according to a predetermined operating current or operating voltage (from (CONT)), said first electric signal outputted from said first photodetecting means, and current control means (CONT) for controlling, according to said second electric signal outputted from said second photodetecting means, said operating current or voltage supplied to said signal amplifying means (see Abstract).

Regarding Claim 2, Takagi teaches (see Fig. 1) the current control means controlling the operating current or operating voltage (see Abstract) such that the operating current or voltage is supplied to said signal amplifying means when said second electric signal is at a predetermined reference value (ref1) or higher (using COMP1) (see Abstract).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3, 5, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi in view of Shiga US Patent No. 5,164,581.

Regarding Claim 3, Takagi teaches the optical receiver in Claim 1, according to the appropriate paragraph above. Takagi does not teach the first photosensitive region as substantially circular and the second photosensitive region having a form surrounding said periphery of said first photosensitive region. Shiga teaches (see Fig. 3A and 5) an optical receiver with first photodetecting means (30a) having a first photosensitive region (28) for outputting a first electric signal corresponding to said signal light detected by said first photosensitive region, second photodetecting means (30b) having a second photosensitive region (29) for outputting a second electric signal corresponding to said signal light incident on said second photosensitive region, and signal amplifying means (33) for amplifying, according to a predetermined operating current or voltage, said first electric signal outputted from said first photodetecting means, wherein the first photosensitive region is substantially circular (see Fig. 3A) and the second photosensitive region has a form surrounding said periphery of said first photosensitive region (see Fig. 3A). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the photosensitive regions of Shiga in the optical

Art Unit: 2878

receiver of Takagi, to detect the presence and absence of the signal without adversely affecting the received signal, as taught by Shiga (see Col. 1, line 65 to Col. 2, line 3 and Col. 4, lines 7-10).

Regarding Claim 5, Takagi teaches the optical receiver in Claim 1, according to the appropriate paragraph above. Takagi does not teach the first and second photodetecting means formed on a single substrate. Shiga teaches (see Fig. 3A and 5) an optical receiver with first photodetecting means (30a) having a first photosensitive region (28) for outputting a first electric signal corresponding to said signal light detected by said first photosensitive region, second photodetecting means (30b) having a second photosensitive region (29) for outputting a second electric signal corresponding to said signal light incident on said second photosensitive region, and signal amplifying means (33) for amplifying, according to a predetermined operating current or voltage, said first electric signal outputted from said first photodetecting means, wherein the first and second photodetecting means are formed on a single substrate (see Fig. 3A and 3B). it would have been obvious to one of ordinary skill in the art at the time the invention was made to place the first and second photodetecting means on a single substrate as taught by Shiga in the optical receiver of Takagi, to integrate the device to monitor the light output without disturbing the output signal, as taught by Shiga (see Col. 1, line 65 to Col. 2, line 3).

Regarding Claims 7 and 8, Takagi teaches the optical receiver in Claim 1, according to the appropriate paragraph above. Takagi also teaches positioning the first photosensitive region on an optical axis of the signal light (see Fig. 1). Takagi does not teach an apparatus or method of arranging an optical receiver by arranging or holding an output end having a divergence greater than the first photosensitive region. Shiga teaches (see Fig. 3A and 5) a method of

Art Unit: 2878

arranging an optical receiver by arranging/holding an output end (fiber) (see Col. 3, lines 5-18) for outputting signal light having a divergence greater than the first photosensitive region (See Col. 1, lines 60-65) and arranging an optical receiver such that the first photosensitive region is positioned on an optical axis of a signal light (see Col. 3, lines 5-10- "fiber", "central portion of active area"). It would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange an output end for outputting signal light having a divergence greater than the first photosensitive region as taught by Shiga with the optical receiver of Takagi, to provide leakage light to monitor the presence/absence of an input optical signal without disturbing the signal, as taught by Shiga (see Col. 1, lines 60-68 and Col. 4, lines 7-10).

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi in view of Shiga US Patent No. 5,164,581 and Steiger US Patent No. 6,493,490.

Takagi teaches the optical receiver in Claim 1, according to the appropriate paragraph above. Takagi does not teach the first photosensitive region as substantially circular and the second photosensitive region having a plurality of separated detecting portions arranged along the periphery of said first photosensitive region. Shiga teaches (see Fig. 3A and 5) an optical receiver with first photodetecting means (30a) having a first photosensitive region (28) for outputting a first electric signal corresponding to said signal light detected by said first photosensitive region, second photodetecting means (30b) having a second photosensitive region (29) for outputting a second electric signal corresponding to said signal light incident on said second photosensitive region, and signal amplifying means (33) for amplifying, according to a predetermined operating current or voltage, said first electric signal outputted from said first

Art Unit: 2878

photodetecting means, wherein the first photosensitive region is substantially circular (see Fig. 3A) and the second photosensitive region has a form surrounding said periphery of said first photosensitive region (see Fig. 3A). Takagi and Shiga do not teach the second photosensitive regions as a plurality of separated detecting portions. Steiger teaches (see Fig. 2) an optical receiver with a photodetecting means (221A,221B,221C,221D) having a plurality of separated detecting portions arranged along the periphery of a substantially circular area (219). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use plural detecting portions as taught by Steiger with the photosensitive regions of Shiga in the optical receiver of Takagi, to detect the presence and absence of the signal without adversely affecting the received signal, as taught by Shiga (see Col. 1, line 65 to Col. 2, line 3 and Col. 4, lines 7-10) while also detecting optical beam alignment for optimal signal reception, as taught by Steiger (see Col. 2, line 57 to Col. 3, line 19).

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi in view of Holcombe US Patent No. 6,356,375.

Takagi teaches the optical receiver in Claim 1, according to the appropriate paragraph above. Takagi does not teach the first and second photodetecting means, the signal amplifying means, and the current control means formed on a single substrate. Holcombe teaches an optical receiver comprising (see Fig. 7) a photodetecting means (230), signal amplifying means (1026) for amplifying an electric signal from the photodetecting means, and current control means (1032, 1026) for controlling the operating current or voltage of the signal amplifying means, all on a single substrate (210) (see Col. 4, lines 19-28 and 39-42). It would have been obvious to

Art Unit: 2878

one of ordinary skill in the art at the time the invention was made to include all the components on a single substrate as taught by Holcombe in the optical receiver of Takagi, to create an integrated design to decrease the size of the device.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Yam whose telephone number is (703)306-3441. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (703)308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7724 for regular communications and (703)308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

SY
July 14, 2003


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